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X1*

1. (Amended) A method of measuring a thermal conductivity of an object, comprising:

positioning a heat source between and in contact with a surface of the object and a surface of a heat resistant material;

aligning the object, the heat source, and the heat resistant material along a substantially vertical axis;

causing heat to flow along a heat flow path from the heat source into the object and an interior of the heat resistant material; and

calculating the thermal conductivity of the object from a temperature difference between at least two spaced apart locations aligned substantially parallel to the vertical axis, the locations being against or inside the heat resistant material.

2. (Amended) The method of claim 1 wherein the heat source has a central area and an auxiliary area surrounding the central area.

3. (Amended) The method of claim 1 wherein an externally exposed surface of the heat resistant material is covered with a cover member.

4. (Amended) An instrument for measuring the thermal conductivity of an object to be measured, comprising:

a heat resistant material having heat resistance;

a temperature difference measuring unit capable of measuring a temperature difference between two locations spaced apart about or inside the heat resistant material; and a heat generating unit configured to be placed vertically between the surface of the heat resistant material and a surface of the object, wherein the heat generating unit generates heat between the surface of the object and the surface of the heat resistant material, causing heat to flow from said surfaces of the object and the heat resistant material into an interior of the heat resistant material, and the thermal conductivity of the object to be measured is obtained from a temperature difference between at least two locations positioned vertically along the heat flow on the surface of or internal to the heat resistant material and object.

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5. (Amended) The instrument of claim 4 wherein the heat generating unit comprises a main heat generating section for generating heat in a central area and an auxiliary heat generating section for generating heat in an area surrounding the main heat generating section.

6. (Amended) A method of determining the suitability of a heat insulating material, comprising an inspection step in which heat is generated between the heat insulating material and object and a heat resistant material and caused to flow through the heat insulating material and the heat resistant material, and a measurement step in which the thermal conductivity of the heat insulating material is obtained from a temperature difference between at least two points of the heat resistant material.

7. (Amended) The method of claim 6 wherein the heat generation area is divided into a central area and an area surrounding the central area.

Please add new claims 8-11 to read as follows:

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8. (New) A method of manufacturing a heat insulating material, comprising steps of:
generating heat between surfaces of the object and a heat resistant material;
causing heat to flow at least substantially vertically from said surfaces of the object and the heat resistant material into an interior of the heat resistant material and object; and
calculating the thermal conductivity of the object from a temperature difference between at least two at least substantially vertically aligned locations spaced apart about or inside the heat resistant material.

9. (New) The method of claim 1 wherein the object is a heat insulating material.